The various chapters on forensic medicine and toxicology are well written, but a few points need correction and revision in a future edition. For example, in reference to "exhumation" it is stated that disinfectants should be freely used. The use of disinfectants in exhumations should, on the contrary, always be avoided, since in suspected poisoning, which is a common reason for exhumation, the use of disinfectants is likely seriously to complicate the analysis. A classical example of this was the Crippen case, where the sprinkling of a disinfecting powder containing carbolic acid and traces of arsenic on the remains added considerably to the difficulties of the analysis.

In the chapter dealing with blood-stains reference should have been made to the benzidine test. Also sufficient importance is not attached to the serum test for human blood, which must now be regarded as being trustworthy, and one of the routine tests which should always be adopted in the examination of blood-stains in order to determine with certainty that they are those of human blood and not of other animals, such as sheep, horse, ox, etc.

We do not find any account of the influence of status lymphaticus in cases of sudden death. In the chapter on abortion there is no mention of the effect of quinine and pituitary extract, which are powerful abortifacients. Reference should have been made to the changes introduced during the war with regard to the procedure in coroners' courts. In the chapters on toxicology one would wish to have seen some description of the poisons, such as tetrachloroethane, trinitrotoluene, etc., which were responsible for so many cases of fatal jaundice amongst munition workers.

The book claims to be a handbook of medical jurisprudence, and as such it has certainly justified its publication, for it will be most useful to students for examination in forensic medicine and to medical practitioners.

Industrial Administration.

Industrial Administration: A Series of Lectures. By A. E. Berriman and Others. (Publications of the University of Manchester. No. cxxxi.) Pp. vii+203. (Manchester: At the University Press; London: Longmans, Green, and Co., 1920.) Price 7*s*. 6*d*. net.

THE lectures published in this volume were delivered in the department of industrial administration in the College of Technology, Manchester, during the session 1918–19, by various well-known authorities on subjects relating to industrial administration. Mr. Seebohm Rowntree discourses on the "Social Obligations of Industry to Labour," and endeavours to fix the minimum wage compatible with the maintenance of a working man and his family in decency and moderate comfort. In answer to the question: "Can industry afford to pay the minimum wages indicated?" he believes that the principal source to which we must look for increased wages is increased efficiency in the organisation and administration of industrial enterprises. Many British factories are run on very inefficient lines, with antiquated machinery and ill-trained staff and workers, and in such cases the profits are inconsiderable even when wages are low.

A most interesting and striking lecture on "Occupational Diseases" was given by Dr. T. M. Legge, who, in his capacity as Medical Inspector of Factories, has been largely responsible for the precautions taken to abate the evils of certain industrial processes. The success of the precautions may be judged from some of the figures he quotes. Whilst in 1900 there were 358 cases of lead poisoning among white-lead workers, and 200 among pottery workers, in 1913 the cases were reduced to 29 and 62 respectively. Of more recent interest are the cases of trinitrotoluol poisoning, which developed with alarming frequency in the latter half of 1916. There were 43 fatal cases in the six months, and another 32 fatal cases in the first six months of 1917, but by that time the chief cause of the poisoning—viz. absorption through the skin—was tracked down, and suitable precautions were taken. In the next six months fatal cases fell to 12, and in the following year to 10.

Other lectures deal with the applications of psychology to industry, industrial fatigue, and education in factory management and administration, whilst Dr. L. E. Hill gives an interesting account of his well-known investigations on "Atmospheric Conditions and Efficiency" by means of the katathermometer. Perhaps the lecture of most general interest is that on "Industrial Councils," by Mr. T. B. Johnston. The national council recently formed in the pottery industry is described in some detail, and it is to be hoped that in course of time similar councils will be formed in all the other staple industries. Equal numbers of representatives of the manufacturers and of the operatives sit on all committees, and they not only consider questions relating to wages, employment, and the conditions of production, but also encourage research into the industry, and consider inventions and improvements designed by the workpeople. Most important of all, the employers disclose full details of wages,

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and profits, so that the workpeople can determine whether they are being fairly treated or not, and at the same time the consumer can ascertain whether the prices he is charged are due in any degree to profiteering. As Mr. Johnston rightly points out, "the first essential to a better understanding between Capital and Labour is that all the cards should be laid on the table."

H. M. V.

Fuel Economy.

The Use of Low-grade and Waste Fuels for Power Generation. By John B. C. Kershaw. Pp. x+202. (London: Constable and Co., Ltd., 1920.) Price 17*s.* net.

THE great increase in the cost of coal has naturally directed the attention of users of fuel to the question of fuel economy, the possibilities of which lie in two directions—the utilisation of lower-grade fuels and waste combustible material, and the more efficient utilisation of all fuels. Mr. Kershaw's book deals adequately with both these aspects of this important question. His earlier chapters are devoted to the consideration of peat, wood waste, small coal and washery waste, and other minor combustibles. In his second section he deals with fuel sampling and analysis and with the scientific control of combustion in practice.

Mr. Kershaw defines low-grade solid fuel as containing more than 25 per cent. of ash and 10 per cent. of moisture, or, in all, 35 per cent. of incombustible material. The cynic may remark that such a definition covers most of the coal at present marketed! Small coal, however, no matter what its ash and moisture content, is also "low grade," and the author includes all coal and coke passing a ¼-in. mesh sieve.

Means are available, and Mr. Kershaw describes them clearly and discusses their merits lucidly, by which the lower-grade fuels may be utilised, but possibly, because of present economic conditions, the more general utilisation of low-grade coal and colliery refuse will be confined to the large, centralised power schemes which have been recommended, and individual consumers will more specifically seek economy in the better utilisation of the class of fuel they have been accustomed to use, and for which their plants can be adapted with but little expenditure. Mr. Kershaw's treatment of this side of the question is adequate and practical, and he is to be congratulated on producing this small volume at this opportune moment, for it is one to command the attention of all interested in the use of fuel for every industrial purpose.

Text-books of Chemistry.

(1) *An Introductory Course in Quantitative Chemical Analysis, with Explanatory Notes, Stoichiometrical Problems, and Questions.* By Prof. G. McPhail Smith. Pp. x+206. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd., 1919.) Price 9*s.* net.

(2) *Quantitative Analysis by Electrolysis.* By A. Classen, with the co-operation of H. Cloeren. Revised, rearranged, and enlarged English edition by Prof. W. T. Hall. Pp. xiii+346. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1919.) Price 17*s.* 6*d.* net.

(3) *Industrial Organic Analysis: For the Use of Technical and Analytical Chemists and Students.* By Paul S. Arup. Second edition, revised and enlarged. Pp. xi+471. (London: J. and A. Churchill, 1920.) Price 12*s.* 6*d.* net.

(4) *A Foundation Course in Chemistry: For Students of Agriculture and Technology.* By J. W. Dodgson and J. Alan Murray. Second edition, thoroughly revised. Pp. xii+241. (London: Hodder and Stoughton, Ltd., 1920.) Price 6*s.* 6*d.* net.

(5) *Chemistry in Everyday Life: Opportunities in Chemistry.* By E. Hendrick. Pp. xii+102. (London: University of London Press, Ltd., 1919.) Price 3*s.* 6*d.* net.

IN the multiplicity of text-books one naturally looks for evidence of the trend of progress as demonstrated in new editions and new volumes. We want to find the aim of the author and why he has considered it desirable to add one more to the books that are already so many that the teacher and the student find it difficult to select the one that will suit them best.

(1) Prof. Smith says of his manual that it is for those who have completed courses in elementary chemistry and qualitative analysis and are beginning work in quantitative analysis. We are glad to see, so far as this is evidence of it, a return to the natural sequence of quantitative following qualitative work. The student at this stage ought to be able to appreciate the introductory section in which the author, after some excellent advice, proceeds to consider the balance, its use and care, methods of weighing, the calibration of weights, various errors and their elimination; the precipitation, filtering, and washing of precipitates, in which he uses the theories of modern physical chemistry; drying, ignition, evaporation, and the use and calibration of volumetric apparatus. The student is thus well prepared to work intelligently, but throughout the book, although the instructions are definite, almost every direction is accompanied with the

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